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Application No. 10/644,993
Amendment dated February 16, 2007
After Final Office Action of November 16, 2006

Docket No.: 0941-0815P

REMARKS

Claims 1-3, 5-10, 13, 14, 16, 17 and 19-32 are now present in this application.

The abstract, specification, and claims 1, 7, 9, 14, 16 and 17 have been amended, claims 4, 11, 12, 15 and 18 have been cancelled without prejudice or disclaimer, and claims 24-32 have been presented. Reconsideration of the application, as amended, is respectfully requested.

Objection to the Claims

Claims 4, 9, 12 and 18 stand objected to for certain informalities. In view of the foregoing amendments, it is respectfully submitted that these informalities have been addressed. Reconsideration and withdrawal of any objection to the claims are respectfully requested.

Rejections under 35 USC 102 and 103

Claims 1-4, 7-9, 11, 12, 14, 17, 18 and 21-23 stand rejected under 35 U.S.C. 102(e) as being anticipated by Lindeman, U.S. Publication 2003/0078069. This rejection is respectfully traversed.

Claims 5, 6, 10, 13, 19 and 20 stand rejected under 35 USC 103 as being unpatentable over Lindeman. This rejection is respectfully traversed.

Claim 1

In claim 1 of the present application, an electronic device (E) comprises a body (B), a display unit (D) disposed on the body (B), and an index unit (3). The body (B) comprises a main

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seat (10) and a pivotal seat (100). The index unit (3) received in the main seat (10) of the body (B) has a connecting end (300) coupled to the pivotal seat (100) of the body (B), a first index port (3-1) and a second index port (3-2). The index unit (3) is movable between a first mode (Fig. 3A) to expose the first index port (3-1) and a second mode (Fig. 3B) to expose the second index port (3-2). When the index unit (3) is moved between the first mode (Fig. 3A) and the second mode (Fig. 3B), the connecting end (300) of the index unit (3) is limited by the pivotal seat (100) of the body (B).

It is clear that the movable index unit (3) coupled to the pivotal seat (100) of the body (B) can be received in the main seat (10) (see Figs. 2, 3A and 3E) or removed out of the main seat (10) of the body (B) (see Figs. 3B, 3C and 3D).

Claim 7

In claim 7 of the present application, an electronic device (E) comprises a first element (1), a second element (2) and an index unit (3). The first element (1) comprises a main seat (10) and a pivotal seat (100). The second element (2) is coupled to the first element (1) with at least one degree of freedom. The index unit (3) received in the main seat (10) of the first element (1) comprises a connecting end (300) coupled to the pivotal seat (100) of the first element (1) with at least two degree of freedom. The connecting end (300) of the index unit (3) is limited by the pivotal seat (100) of the first element (1) when the index unit (3) is moved with respect to the first element (1).

It is clear that the movable index unit (3) coupled to the pivotal seat (100) of the first element (1) can be received in the main seat (10) (see Figs. 2, 3A and 3E) or removed out of the main seat (10) of the first element (1) (see Figs. 3B, 3C and 3D).

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Lindeman

In Figs. 3 and 4 of Lindeman, the second housing portion (104) is a rotatable part mounted on the first housing portion (102) through the groove (123) and the tongue (125).

However, when the portable communication device is open, the first housing portion (102) and the second housing portion (104) are exposed to the exterior (see Fig. 1). When the portable communication device is closed, the first housing portion (102) and the second housing portion (104) are overlapped from each other and exposed to the exterior (see Fig. 2). The second housing portion (104) is an outer part exposed to the exterior when the portable communication device is in an open or closed mode. In other words, no recess or space is formed on the first housing portion (102) to receive the second housing portion (104). This is unlike the electronic device of independent claims 1 and 7, as set forth above.

In view of the foregoing amendments and remarks, it is respectfully submitted that the prior art utilized by the Examiner fails to teach or suggest the electronic device of independent claims 1 and 7, as well as their dependent claims. Reconsideration and withdrawal of the 35 USC 102 and 103 rejections are therefore respectfully requested.

Allowable Subject Matter

Applicants gratefully acknowledge that the Examiner considers claims 15 and 16 to contain allowable subject matter. Without conceding the appropriateness of the Examiner's rejections of independent claim 14, but simply to expedite prosecution of this application, it is noted that limitations from objected-to but allowable claim 15 have been incorporated into

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independent claim 14. Accordingly, claim 14 and its dependent claims should now be in condition for allowance.

Newly Presented Claims

In newly presented claims 24-32, the structure of the electronic device (E) is specifically defined. These claims set forth certain limitations which are also neither taught nor suggested by the prior art utilized by the Examiner.

Claims 24-26 set forth that the main seat is a recess formed on the first element to receive the index unit, and the index unit received in the recess of the first element is enclosed by the first element and the second element or body. These features are neither taught nor suggested by Lindeman.

Further, claim 27 sets forth an electronic device comprising a first element (1) having a main seat (10) and a pivotal seat (100), a second element (2) coupled to the first element (1) along a first axis (a-a), a display unit (D) disposed on the second element (2), an intermediate element (M) limitedly disposed on the pivotal seat (100) of the first element (1) and rotated along a second axis (b-b), a display unit (D), and an index unit (3) accessibly received in the main seat (10) of the first element (1) and coupled to the intermediate element (M) along a third axis (c-c) different from the second axis (b-b). The second axis (b-b) is not the same as the first axis (a-a). It is clear that the features such as "first element (1) having a main seat (10) and a pivotal seat (100)" and "index unit (3) accessibly received in the main seat (10) of the first element (1) and coupled to the intermediate element (M) along a third axis (c-c) different from the second axis (b-b)" are also neither taught nor suggested by Lindeman.

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Accordingly, it is respectfully submitted that newly presented claims 24-32 are also allowable over the prior art utilized by the Examiner.

Conclusion

Favorable reconsideration and an early Notice of Allowance are earnestly solicited.

Because the additional prior art cited by the Examiner has been included merely to show the state of the prior art and has not been utilized to reject the claims, no further comments concerning these documents are considered necessary at this time.

In the event that any outstanding matters remain in this application, the Examiner is invited to contact the undersigned at (703) 205-8000 in the Washington, D.C. area.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted

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TITLE

ELECTRONIC DEVICE

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to an electronic device, and in particular to an electronic device provided with an index unit having two different index ports to switch between two different modes with degree of freedom larger than two.

Description of the Related Art

Electronic apparatus or devices, such as mobile phone, Person Digital Assistant (PDA), etc., are provided with an internal keyboard for data input. In, for example, a mobile phone, the internal keyboard is permanently fixed TO the main part of the mobile phone, and the keyboard must be reduced in size commensurately with the demands on these electronic products for smaller volume. Only a few basic keys are thus provided on the internal keyboard of the mobile phone.

However, when some characters and fonts, not initially provided on the internal keyboard or preset in the mobile phone, are to be input, an external keyboard, touch displayer (LCD), or the like is needed.

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SUMMARY OF THE INVENTION

Accordingly, an object of the invention is to provide an electronic device with an index unit having two different index ports to switch between two different modes.

The invention provides an electronic device, such as a mobile phone, having a body, a display unit, and an antenna. The display unit is electronically connected to the body to display data, and the antenna is electronically connected to the body for transferring data. The body has an index unit provided with first and second index ports, from which data can be input. Thus, the mobile phone can function in different modes when switching from the first index port of the index unit to the second index port of the index unit.

Further scope of the applicability of the present invention will become apparent from the detailed description given hereinafter. However, it should be understood that the detailed description and specific examples, while indicating preferred embodiments of the invention, are given by way of illustration only, since various changes and modifications within the spirit and scope of the invention will become apparent to those skilled in the art from this detailed description.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will become more fully understood from the subsequent detailed description and the accompanying drawings, which are given by way of illustration only, and thus are not limitative of the present invention, and wherein:

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Fig. 1 is a perspective view of an electronic device (E) of the invention, in a closed position;

Fig. 2 is another perspective view of the electronic device (E) in Fig. 1, in an open position, provided with an index unit (3) in a first mode;

Fig. 3A is a perspective view of the electronic device (E), wherein a force (F) is applied to open the index unit (3) of the electronic device (E);

Fig. 3B is another perspective view of the electronic device (E) in Fig. 3A, wherein the index unit (3) is rotated about an axis (b-b) to a standing position;

Fig. 3C is another perspective view of the electronic device (E) in Fig. 3B, wherein the index unit (3) is rotated about an axis (c-c) to another standing position;

Fig. 3D is another perspective view of the electronic device (E) in Fig. 3C, wherein the index unit (3) is rotated about the axis (c-c) to yet another standing position;

Fig. 3E is another perspective view of the electronic device (E) in Fig. 3D, wherein the index unit (3) is rotated about the axis (b-b) and in a second mode.

DETAILED DESCRIPTION OF THE INVENTION

In Fig. 1, an electronic device E of the invention has a body B comprising a seat 100, a display unit D and an antenna 4. The body B is a host of the electronic device E. The display unit D is electronically connected to the body B to display image data B,

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and the antenna 4 is electronically connected to the body B for transferring data. In this preferred embodiment, the display unit D is a liquid crystal display (LCD).

In Fig. 2, the body B has a first element 1, a second element 2, an index unit 3 comprising a connecting end 300 coupled to the ~~seat 100~~pivotal seat 100 of the body B, and an intermediate element M. The second element 2 is coupled to the first element 1 along a first axis a-a. The index unit 3 is coupled to the second element 2 along a second axis b-b through the intermediate element M and electronically connected to the display unit D. The index unit 3 has a first index port 3-1 electronically connected to the display unit D through a circuit not shown. In Fig. 2, the index unit 3 is received in a ~~seat 10~~main seat 10 of the first element 1 and in a first mode by exposure on the outside of the first element 1, such that the display unit D can be controlled by the first index port 3-1. The first index port 3-1 is composed of several keys 310.

The second element 2 of the body B has a first panel 2-1 and a second panel 2-2. The display unit D disposed on the first panel 2-1 and the second panel 2-2 is electrically connected to the first element 1. Thus, data can be viewed on the display unit D either from the first panel 2-1 or from the second panel 2-2 of the second element 2. That is to say, data can be viewed no matter whether the electronic device E is closed (Fig. 1) or open (Fig. 2).

Figs. 3A to 3E show five perspective views of the index unit 3 rotated from a first mode (Fig. 3A) to a second mode (Fig. 3B).

In Fig. 3A, a force F is applied to the index unit 3 received in the ~~seat 10~~main seat 10 to rotate the index unit 3 about a second axis b-b. The index unit 3 in Fig. 3B is located in a

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standing position, and the index unit 3 in Fig. 3C is rotated about a third axis c-c to another standing position, and the index unit 3 in Fig. 3D is still rotated about the third axis c-c to another standing position. Finally, by rotating the index unit 3 about the axis b-b, the index unit 3 in Fig. 3E is received in the ~~seat 10~~main seat 10 of the first element 1 and in a second mode.

In Fig. 3A and 3B, the first element 1 and the second element 2 rotate about the first axis a-a into an open position at 180°. Thus, the degree of freedom of the first element 1 with respect to the second element 2 or of the second element 2 with respect to the first element 1 is one.

The ~~seat 10~~main seat 10 is a recess formed on the first element 1 for receiving the index unit 3 in different operating modes.

The connecting end 300 of the index unit 3 is limited by the ~~seat 100~~pivotal seat 100 of the body B when the index unit 3 is moved between the first mode (Fig. 3A) and the second mode (Fig. 3B).

In Fig. 3C, the intermediate element M is a hinge disposed between the index unit 3 and the second element 2, i.e., the axis of the intermediate element M overlaps with the second axis b-b and is coupled to the first element 1. The index unit 3 is connected to the middle portion of the intermediate element M and can spin along the third axis c-c.

In this embodiment, the third axis c-c is substantially not parallel to the second axis b-b, and the third axis c-c is substantially perpendicular to the second axis b-b. When the index unit 3 is rotated about the second axis b-b with respect to the first element 1, the intermediate element M is also simultaneously rotated about the second axis b-b with the index unit 3. Further, the

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index unit 3 can still rotate about the third axis c-c, such that the degree of freedom of the index unit 3 with respect to the first element 1 is two.

In Fig. 3D and 3E, the index unit 3 further provides a second index port 3-2 opposite to the first index port 3-1. The second index port 3-2 is electronically connected to the display unit D through a circuit (not shown) and exposed on the outside of the first element 1 in Fig. 3E, such that the display unit D can be controlled by the second index port 3-2. The second index port 3-2 is composed of several keys 320 with functions different from those of the first index port 3-1.

In this preferred embodiment, the electronic device E is a mobile phone, but the design of the index unit 3 can also be applied to products such as Personal Digital Assistant (PDA), portable computer, calculator, etc.

It is noted that an icon d1 on the display unit D in Fig. 3A is in accordance with the arrangement of the keys 310 of the first index port 3-1 of the index unit 3, i.e., this mode of the electronic device E in Fig. 3A is normal for a mobile phone. An icon d2 shown on the display unit D in Fig. 3E is in accordance with the arrangement of the keys 320 of the second index port 3-2 of the index unit 3, i.e., this mode of the electronic device E in Fig. 3E is in PDA mode. That is to say, when the first index port 3-1 is changed to the second index port 3-2 or the second index port 3-2 to the first index port 3-1, the orientation of the image on the display unit D changes depending on the first index port 3-1 or the second index port 3-2.

Thus, the electronic device E can perform mobile phone or PDA functions by switching of the first index port 3-1 of the index unit 3 to the second index port 3-2 of the index unit 3.

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While this invention has been described in connection with what is presently considered to be the most practical and preferred embodiment, it is to be understood that the invention is not limited to the disclosed embodiments, but, on the contrary, is intended to enclose various modifications and equivalent arrangements included within the spirit and scope of the appended claims.